Optical properties of four Florida panhandle estuaries.

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Estuarine and coastal regions in the Gulf of Mexico possess major ecological and economic resources and, within these regions, submerged aquatic vegetation protect shorelines from erosion and provide habitat for fish and invertebrates. This project will improve decision making by quantifying stressor-response relationships and reference conditions related to water clarity that support SAV habitats. Optical and physical properties of the waters were characterized in 4 northeast Gulf of Mexico estuaries (Pensacola Bay, Choctawhatchee Bay, St. Andrew Bay, and St. Joseph's Bay). Discrete surface water samples were analyzed for chlorophyll, total suspended solids, particulate absorbance, phytoplankton absorbance, and CDOM absorbance. Vertical profiles of absorption and scattering coefficients were obtained with an AC-s. Remote sensing reflectance [$Rrs(\lambda)_{0+}$] and downwelling attenuation [$Kd(\lambda)$] were determined from a hyperspectral surface acquisition system and hyperspectral profiling system between 400–735 nm at a 1 nm resolution. These systems were selected because they have a range of optical characteristics and are of sufficient size to be adequately resolved in remote sensing imagery. Data will assist in the characterization of light attenuation and will be used to calibrate Moderate Resolution Imaging Spectroradiometer (MODIS) remote sensing products for characterizing chlorophyll-a, water clarity, and sediment concentrations in these estuaries.